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ABSTRACT

The systematic evaluation of the macroenvironment is sometimes referred to as a strategic trend information system. Strategic trend intelligence systems are highly developed, systematic intelligence programs that focus on trends and events in the external environment and provide institutions with knowledge to reduce areas of uncertainty and with lead time to adjust swiftly to unforeseen trends. Strategic trend intelligence systems depend on a comprehensive, systematic, environmental scanning program for basic information and on an organized issues-management-support system to transform information into intelligence that may be used for organizational action. This paper offers information on how to initiate and organize an environmental scanning system, such as: using environmental scanning in American higher education; establishing the organizational structure; locating available information sources; using electronic databases; assigning information resources to scanners; conducting a scanning committee meeting; developing a scanning/monitoring taxonomy; publishing a scanning newsletter; and considering methodological issues in scanning. A conclusion is that participation in the process facilitates team building, focuses attention of decision makers on the longterm future, and ensures that the developed intelligence has authority from top management. (LMI)

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Environmental Scanning in Educational Planning: Establishing a Strategic Trend Information System

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Environmental Scanning in Educational Planning: Establishing a Strategic Trend Information System

The systematic evaluation of the macroenvironment is sometimes referred to as a strategic trend information system, a relatively new concept being employed by a few strategically managed institutions both in the U.S. and abroad. Strategic trend intelligence systems are highly developed, systematic intelligence programs that focus on trends and events in the external environment and provide the knowledge and intelligence necessary to reduce areas of uncertainty. Most importantly, a strategic trend intelligence system gives organizations the lead time and anticipatory capability they need to adjust swiftly as trends stray from conventional wisdom.

Strategic trend intelligence systems depend upon a comprehensive, systematic environmental scanning program for basic information, and upon an organized issues management support system to transform environmental scanning information into intelligence that may be used for organizational action.

Environmental Scanning[1]

Brown and Weiner (1985) define environmental scanning as "a kind of radar to scan the world systematically and signal the new, the unexpected, the major and the minor" (p. ix). Aguilar (1967) in his field study of information-gathering practices of managers, defined scanning as the *systematic* collection of external information in order to (1) lessen the randomness of information flowing into the organization and (2) provide early warnings for managers of changing external conditions. More specifically, Coates (1985) has identified the objectives of an environmental scanning system as:

- detecting scientific, technical, economic, social, and political interactions and other elements important to the organization
- defining the potential threats, opportunities, or potential changes for the organization implied by those events
- promoting a future orientation in management and staff

[1] A modified version of this paper was published earlier (Morrison, 1993).

- alerting management and staff to trends that are converging, diverging, speeding up, slowing down, or interacting (pp. 2-14)

Fahey & Narayanan (1986) argue that an effective environmental scanning program should enable institutional decision-makers to understand current and potential changes taking place in their institution's external environment. In essence, scanning provides strategic intelligence useful in determining organizational strategies. A consequence of this activity is to foster an understanding of the effects of change on organizations, to aid in forecasting changing conditions, and to bring expectations of change to bear on decision-making (Neufeld, 1985, p. 39).

Recent literature in educational planning has encouraged college and university decision-makers to use the environmental scanning process as part of their strategic planning model (Callan, 1986; Keller, 1983; Morrison, 1987; and Morrison and Mecca, 1990). Scanning is viewed as a component of external analysis which, when merged with an internal analysis (i.e., review of mission, strengths, weaknesses), assists decision-makers to formulate strategic directions for operational planning (see Figure 1).

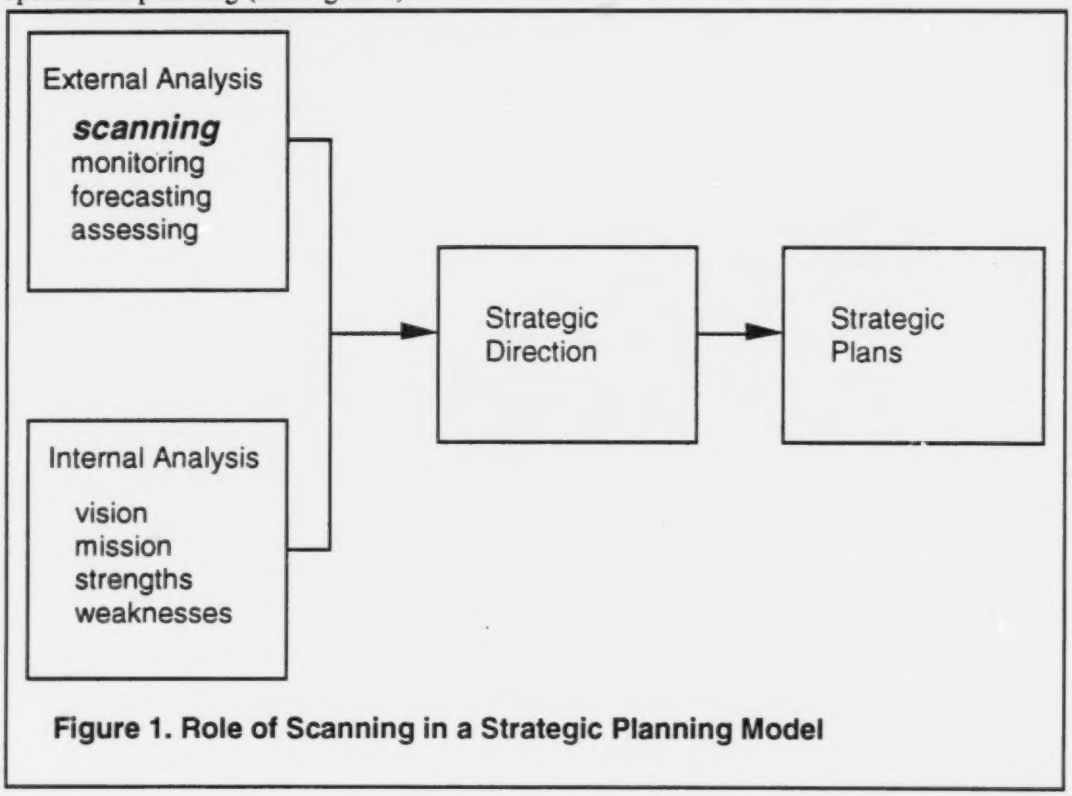

Figure 1. Role of Scanning in a Strategic Planning Model

The purpose of this paper is to examine various models of environmental scanning, the extent to which colleges and universities use these models, and how you can establish and use an environmental scanning process on your campus. But first we need to define what we mean by environment and by scanning.

Defining the external environment

Fahey & Narayanan (1986) describe several levels of environment. The *task environment* refers to a set of customers (e.g., students and potential students, parents of students and of potential students, political leaders, employers and potential employers of students, professional associations of faculty and administrators). The task environment is more or less specific to a particular institution. Thus, although the task environments of a community college and a research university within 20 miles of each other may overlap, they also differ. The *industry environment* comprises all enterprises associated with higher education in the society. At this level, factors such as the level of public confidence in higher education, or student aid bills being considered by Congress, directly affect all institutions, although the effect of these factors varies depending upon the type of institution (i.e., research or comprehensive, two- or four-year). At the broadest level lies the *macroenvironment* where changes in the social, technological, economic, environmental and political sectors affect colleges and universities both directly or indirectly. Thus a national or global recession increases the probability of budget cuts of state or national governments, and, consequently, budget cuts in publicly-supported institutions and, perhaps, state support for independent colleges and universities. At the same time, a recession may stimulate an increase in enrollments, particularly in institutions with low tuitions.

The macroenvironment includes the social, technological, economic, environmental, and political (or STEEP) sectors. The social sector focuses on demographics, life-styles, and values. Our interest here lies in understanding shifts in population characteristics and the emergence of new social values or life-styles. The technological sector is concerned with advances in basic and applied research with the diffusion of technical aspects into every aspect of our lives (e.g., new processes, products, or materials) that may generate commercially-viable new technologies. The economic sector focuses on the general set of economic factors and conditions in the regional, national and global society (e.g., GNP growth, disparity in income levels, concentrations of wealth). The environmental sector includes the social, technological, economic, and political factors in environmental issues (e.g., energy efficiency, reusing and recycling, protecting biological bases, adequately feeding world population, stabilizing population, environmental protection). The political sector focuses on local, regional, national, and global political and regulatory processes (e.g., interest groups, regulatory agencies, legislation). These sectors are

interrelated. Changes in one sector at any level (local, national, global) may lead to changes in another. A war in the Middle East may cause the price of oil to increase, thus stimulating a recession, which in turn results in budget cuts. Technological developments in California that enable the conversion of wind power to low cost energy may be introduced world-wide, thereby reducing the costs of fossil fuel energy, with concomitant economic ramifications. Thus developments in the macroenvironment can affect developments in the task and industrial environments. This point underscores the necessity of scanning the macroenvironment as well as the task and industrial environments if we want to pick up the early signals of change that may affect our institutions.

Defining scanning

Aguilar (1967) identified four modes of collecting scanning information. *Undirected viewing* consists of reading a variety of publications for no specific purpose other to "be informed." *Conditioned viewing* consists of responding to this information in terms of assessing its relevance to the organization. *Informal searching* consists of actively seeking specific information, but doing it in a relatively unstructured way. This is in contrast to *formal searching,* a proactive mode entailing formal methodologies for obtaining information for specific purposes.

Morrison, Renfro, and Boucher (1984) condensed these modes to passive and active scanning. *Passive scanning* is what most of us do when we read journals and newspapers. We tend to read the same kinds of materials—our local newspaper, perhaps a national newspaper like the *New York Times*, *The Independent* or *The Wall Street Journal*, and the industry newspaper, *The Chronicle of Higher Education.* We don't tend to read *In These Times* or *Rolling Stone.* The organizational consequences of passive scanning are (1) we do not systematically use the information as intelligence information for the institution and (2) we miss ideas that may signal changes in the macroenvironment that could affect our institution. In order to broaden our perspective and to fight the myopia inherent in us all, we need to use active scanning.

Active scanning focuses attention on information resources that span the broad areas of social, technological, economic, and political sectors—locally, regionally, nationally, and globally. In active scanning, it is important to include information resources that represent different dimensions of the same category (i.e., include *The New Republic* and *The National Review* for the political sector, national level). The list of information resources described later are in a matrix of information resources at the national and international STEEP levels.

Fahey, King, and Narayanan (1981) described a typology of systems of scanning used by organizations. *Irregular* systems are used on an ad hoc basis and tend to be crisis initiated. These systems are used when a planning committee needs information for planning assumptions, and conducts a scan for that purpose only. *Periodic* systems are invoked when the director of planning or of institutional research periodically updates that scan, perhaps in preparation for a new planning cycle. *Continuous* systems use the active scanning mode of data collection to systematically inform the strategic planning function in an institution. The rationale undergirding this mode is that potentially relevant "data" are limited only by one's conception of the relevant macroenvironment. These data are inherently scattered, vague, imprecise, and come from a host of varied sources. Since early signals often show up in unexpected places, the scanning purview must be broad and ongoing.

The relationship between scanning and environmental analysis

The terms environmental scanning, environmental analysis, environmental appraisal, and environmental assessment are often used synonymously. Fahey & Narayanan (1986) attempt to clarify this situation by arguing that *scanning* the environment to identify signals of potential environmental change or to detect environmental changes already taking place is only one of four components of environmental analysis. The other components are *monitoring* specific environmental trends and patterns, *forecasting* the future direction of environmental changes, and *assessing* current and future environmental change for organizational implications. The goal of environmental scanning is to alert decision makers to potentially significant external impingements before they have crystallized so that decision makers may have as much lead time as possible to consider and to plan for the implications of this change. Consequently, the scope of environmental scanning is broad—they likened scanning to viewing a radar screen with a 360 degree sweep to pick up any signal of change.

The relationship between scanning and monitoring

The terms scanning and monitoring are often used interchangeably, but, as Fahey & Narayanan point out, monitoring follows scanning. Every possible change or potential shift in the macroenvironment cannot be given equal attention. We select items by defining topics or ideas that are incorporated in "the interesting future"—the period in which major policy options adopted now could probably have significant effect (Renfro & Morrison, 1983, p. 5). We lay aside those trends and events that are important, but not critical *at this time*, and collect data periodically on them. These data are "monitored" so that changes in the status of these trends and potential events can be detected.

Also, the signals of change identified in scanning, if interpreted as having potential impact on the institution, must be monitored. The goal of monitoring is to assemble sufficient data to discern the past and future direction of trends or to enable us to estimate the strength of indicators of potential events. Thus, scanning enables you to identify critical trends and potential events. In monitoring you will use descriptors or indicators of these trends and potential events as key words in your systematic search to obtain information about them.

When you collect data in the monitoring activity, look for information that contains forecasts and perhaps speculation about the implications of the trend or event for institutions of higher education. Monitoring *per se* does not entail forecasting or impact assessments on our own organization. Therefore, in this chapter we will adhere to the convention detailed by Fahey & Narayanan and focus only on types of scanning activity and how you can implement that activity in your institution.

How is environmental scanning being used in U.S. colleges and universities today?

A number of colleges and universities have begun to develop methods of formally incorporating environmental scanning information in planning for the future. Appendix A contains an illustration of how one organization, The University of Georgia Center for Continuing Education, establishes and uses such a system.

Friedel & others (1991) conducted a survey of 991 two-year colleges in the U.S. in the spring of 1991 to identify those institutions that currently conduct environmental scans. Based upon a 60% response rate, they found that 40% of the institutions responding conduct some form of environmental scanning. Of these institutions, 20% use an irregular system, 40% use a periodic system, and 32% use a continuous system. Using any form of scanning is relatively new—half of those using scanning have been doing so for only five years. Some 20% of their respondents stated that they intended to begin a scanning process within the next two years. Meixell (1990) in a survey of 134 public research and doctorate-granting institutions (based upon a 78% response rate) found that environmental scanning in some form is used in the planning process at half of these institutions.

Pritchett (1990) identified three colleges and universities considered to have institutionalized exemplary scanning programs used to support strategic planning and decision-making and conducted a case study describing each program. Two institutions use an *ad hoc* environmental analysis committee appointed by the president. At one institution (a public, urban, doctoral

degree-granting university) the committee is directed by the planning and budget office and consists of experts and community representatives. The scanning cycle is periodic (every two years); the focus is on the task environment. The committee produces a report defining trends, threats and opportunities. This report is used by the planning advisory committee to prepare a five-year strategic direction document in which environmental analysis information is matched with institutional strengths, weaknesses, mission, and state laws. This report is then given to the president who, assisted by the staff, prepares the "University-wide Strategic Directions" report. This report is reviewed by university constituent groups before dissemination to deans and department heads to use in developing unit plans. These plans are reviewed by the president and then linked to the budget.

At the second institution, a two-year college, the scanning committee is coordinated by the vice-president and consists of representatives of the college work force. This college uses an irregular system (i.e., scanning is done on an "as needed" basis). The focus is on the task environment; the product is a chapter in the institution's planning document detailing threats and opportunities. This chapter is used by the planning steering committee in their preparation of a list of five-year institutional goals. Here environmental scanning information is matched with institutional strengths, weaknesses, values, mission and perceived problems. The president submits these goals to the board of regents for approval. After goal approval, institutional task forces are formed to specify objectives to accomplish goals. Deans and department heads formulate unit plans based upon institutional goals and objectives.

At the third institution, a comprehensive public institution offering baccalaureate and master's degrees, environmental scanning is the responsibility of the institutional research office. Scanners consist of office staff, who maintain a continuous system scanning the task environment and some elements of the general macroenvironment. The office produces abstracts and a newsletter. These products are distributed to the standing planning council, to the president and executive council, and to all deans and department heads. The planning council is responsible for preparing a three-year report titled, "Institutional Planning Objectives." This report is sent to the president and executive council who match the objectives with scanning information, presidential priorities, the governing board priorities, and proposed new programs/services. It is then sent to deans and department heads for their use in developing unit plans.

Pritchett also found that there were common patterns in how the environmental scanning activity was developed in these institutions. New presidential leadership and active governing board influence were critical in two institutions, and reductions in state appropriations and enrollment declines were influential for all three institutions. In all institutions, presidential recognition and

support for the formal scanning process was seen as an essential element of the planning process. The effectiveness of the scanning process on planning and decision-making was seen as having both limitations and benefits. Some respondents expressed concern about the quality of the data, that environmental domains were defined too narrowly, and that there was limited faculty participation. However, most respondents saw that scanning increased their awareness of external influences, provided more focus on organizational strategies and goals, and provided realistic and "better" data for planning (p. 36).

How can you initiate an environmental scanning program?

First, you must decide which level of scanning commitment is best for your institution at this time. Most colleges and universities operate an irregular or periodic system focusing on the task environment. These levels require less resource commitment from the institution, but they only address the immediate needs for information about the external environment. You may satisfy the requirements of these levels through several means. A quick way of getting started is to interview major decision-makers regarding their view of the most critical trends and developments that could affect the institution. Use the interviews and conversations with your colleagues (including those at other institutions) to identify critical trends and potential developments. Also review past program reviews, the last institutional self-study and the most current master plan. The research librarian can assist you search for information on these items.

Establishing a continuous scanning system will require much more effort and resources. First, you will need to secure a resource commitment from the senior official responsible for planning. At a minimum, this system will require a professional and a support person to devote half of their time to the enterprise. Second, a comprehensive program requires a number of scanners who agree to rigorously and systematically review specific information resources. Assuming that you secure the resources, your next step is to recruit volunteers to perform scanning.

One approach that has been successfully used to recruit scanners consists of offering a half- to full-day environmental scanning workshop.[1] Invite faculty members from all disciplines as well as key administrators (or their assistants) from all functional areas. Certainly include members of the planning committee or council, as well as members of the board of trustees and/or board of visitors. Heterogeneity of backgrounds, experience, and perspectives guards against parochial viewpoints and will help us "see" into the future with less hindrance from our own "blinders."

[1] See Morrison (1985), Morrison and Cope (1985), Mecca and Morrison (1988), and Morrison and Held (1988) for sample descriptions of such workshops.

The invitation should convey the idea that environmental scanning information is essential for the institution and for its constituent parts, including program planning within individual departments or functional areas. Also stress that the information obtained in the environmental scanning process will be used to inform the on-going strategic planning process. Therefore, they should keep in mind that they are scanning for information that has implications for the future of the institution and its programs.

After explaining how environmental scanning fits into external analysis, and how external analysis is merged with internal analysis to formulate strategic plans, initiate a series of exercises where participants identify and prioritize critical trends and emerging issues. These exercises allow participants to bring their individual knowledge of the external environment to the discussion, thus initiating the development of an event and trend set you can use in monitoring, the second component of external analysis. Moreover, the process of identifying critical trends and potential events should generate enthusiasm among participants to be part of the scanning team.

In a full-day workshop, you can spend time preparing scanners for their task in both scanning and in preparing abstracts. Stress the following points:

- Seek information about signals of change in the STEEP (i.e., social, technological, economic, environmental, political) categories, on the local, regional, national and global level. This requires examining sources for movement in relevant variables (e.g., average SAT or A Level score of entering college freshmen, percentage of black males applying for college, etc.) What change is already taking place? Is there a movement upward or downward? What are the projections? What are the incipient or emerging trends (i.e., what combinations of data points—past trends, events, precursors—suggest and support the beginnings or early stages of a possible trend? What external events, policies, or regulatory actions would affect the projections?

- Look for signals of potential events on the horizon. For example, research on Alzheimer's disease may produce a drug with side effects to enhance memory capabilities. New research on solar or wind energy may portend significant savings in energy costs. An increasing number of interactive videodisks and CD Roms may portend a major change in how teaching will be conducted in higher education.

- Look for forecasts of experts. For example, Brown, Slavin, and Postel (1991) forecast that we are moving toward a sustainable world (e.g., a world where attention is focused on energy

efficiency, reusing and recycling materials, protecting biological and environmental bases, feeding and stabilizing the world population). We ask, What are the implications of these forecasts for higher education? For our institution?

- It is important to remember that because a particular item does not seem to have direct implications for the institution does not mean that you should not include it for further analysis. It may affect us through second or third order effects.

- Remember that scanning is an art form; guidelines on how to do it are necessarily few. There are no hard and fast rules to lead to "correct" interpretation of information nor the "correct" interpretation of an issue or change. Keep in mind that your institution has a variety of constituent groups (or stakeholders); try to view information that you receive *vis-à-vis* implications from their point of view. The data do not speak by themselves. Your skills, abilities, experience, and judgment are critical in breathing life into the data and in interpreting the data so that they have meaning. View yourself as an artist "to mold and shape material into a coherent whole; to present a vision; to help others imagine and reflect" (Neufeld, 1985, p. 44).

- When preparing abstracts, write the lead sentence in response to this question: "If I had only a few minutes to describe this article to a friend, what would I say? What is the most important idea or event that indicates change?" The response to these questions should be contained in a one-paragraph explanation. Whenever possible, include statistical data. Limit the summary to no more than one-half page of single-spaced, typewritten copy. You may want to include a statement of the implications of the article for the institution, depending upon the institutional culture of your institution. At some institutions, decision makers wish to see only pertinent articles, not abstracts with implications (Robert Wilkinson, personal communication, February 1992).

Establishing the structure

The structure of the system does not have to be elaborate. A scanning committee could consist of planning committee members and other interested individuals. The chair is responsible for assigning information sources to each scanner and for collecting and filing copies of articles and scanning abstracts. Periodically, perhaps bimonthly or quarterly, the planning team meets as a scanning evaluation committee to sort, sift, and evaluate the significance of the abstracts. It is reasonable to anticipate from 75-100 abstracts per quarter, depending to some extent on the number of individuals employed in scanning. These meetings will require the team to summarize

by sector (i.e., social, technological, economic, environmental, and political) all abstracts produced during the quarter. This activity will take one work week by team members. An alternative approach would be for the chair to categorize the abstracts by sector and assign each team member the responsibility for reviewing all abstracts in that sector. Regardless of which approach is used, prepare a written summary (in essence a preliminary analysis) by sector and distribute it prior to the committee meeting. Discussion and analyses at this meeting will take approximately four hours. Each meeting concludes with additions to the trend or event set and perhaps with updated information on trends and events already in the set. The chair should document the discussion and prepare a report for the planning committee or for the chief executive officer.

What information sources are available?

The important criterion for literature selection is diversity. Information should be obtained from newspapers, magazines, dissertations, journals, TV and radio programs, conferences, and from knowledgeable individuals in your personal information network.

There is no lack of information resources available. *Future Survey Annual 1988-89* lists some 454 futures-relevant periodicals. For example, there are 46 publications in international economics and development, 45 in environment/resources/ energy, and 31 in health and human services that frequently have futures-relevant information (Marien, 1991, p. 86).

In addition, many individuals and organizations put their scan on ERIC. [For examples, see Friedel, 1989 (ED319451 JC900300), Osborn, 1989 (ED307009 JC890256), and Catonsville (Maryland) Community College, 1989 (ED309817 JC8900388).] There are several scheduled scanning publications of relevance to the macroenvironment of higher education. The Wilkinson Group publishes a monthly scanning newsletter called *What's Happening* (Wilkinson Group, 8128 Pine Lake Court, Alexandria, VA 22309). United Way of America (701 North Fairfax Street, Alexandria, VA 22314) publishes *What Lies Ahead* on a biennial basis. The World Future Society (7910 Woodmont Avenue, Suite 450, Bethesda, MD 20814) publishes *Future Survey*, a monthly abstract of books, articles and reports containing forecasts, trends and ideas about the future. The Global Network publishes the *John Naisbitt's Trend Letter* (1101 30th St., NW, Suite 130 Washington DC 20007). Kiplinger Washington Editors publish the *Kiplinger Washington Letter* (1729 H St., NW, Washington, DC 20006).

Other general interest sources are as follows:

- Newspapers—*The New York Times, The Washington Post, The Wall Street Journal, The Miami Herald, The Chicago Tribune, The Los Angeles Times, The Christian Science Monitor,* and three excellent British newspapers, *The Times, The Independent,* and *The Guardian.*

- Magazines—*Vital Speeches of the Day, Across the Board, Time, Newsweek, U.S. News and World Report, Futures, The Forum for Applied Research and Public Policy,*[2] *World Monitor, Atlantic, The Nation, Ms,* and *The Futurist.* [See Marien (in press) for a more comprehensive list of excellent general interest sources.]

There are a number of periodic macroenvironmental scanning information resources soon to be available. The University of North Carolina at Chapel Hill publishes an environmental scanning newsletter for higher education in conjunction with its Program in Educational Leadership (Office of the Dean, School of Education, CB# 3500 Peabody Hall, Chapel Hill, NC 27599). The *UNESCO Future Scan: A Bibliographic Bulletin of Future-Oriented Literature* (Place de Fontenoy, 75700 Paris, France) has begun semiannual publication. Although the first issue (Jan-June 1992) focuses on the industry environment of global education, future issues will focus on selected sectors of the global macroenvironment.

In order to ensure that we are adequately scanning the macroenvironment, we must identify specific information resources for each STEEP category locally through globally. A comprehensive list of information sources organized by category for the macroenvironment should include the following:

1. Social/Demographic/Values/Life-Styles Literature—In the U.S., use *American Demographics, Public Opinion* and data from periodic publications or statistics from the Census Bureau, other federal, state, and local governmental agencies, and university sociology departments or population study centers. The Department of Labor and the National Technical and Information Services make available specific types of demographic analyses. The National Center for Health Statistics provides data on trends in areas such as fertility and life expectancy. The U.S. League of Savings Associations studies changes in home-buyer demographics, and the American Council of Life Insurance's Social Research Services conducts demographic studies. The UN and OECD publish periodic reports detailing international developments in this area. In Great Britain, use *New Society* and data from

[2]Write to the editor, 1005 Mississippi Avenue, Davenport, IA 52803 to obtain a subscription.

the Department of Trade & Industry for specific analysis and data from the Department of Health and Social Services for information about fertility and life expectancy. The Building Societies Association has data on changes in home-buyer demographics.

2. Technological Literature—*Technolo-gical Review, Datamation, BYTE, Computer World, Discover, InfoWorld, Science, Scientific American, The Whole Earth Review, Nature, New Scientist* and *Proceedings of the National Academy of Sciences.*

3. Economic Literature—*Business Week, The Economist, Fortune, Forbes, Money, Inc., The Monthly Labor Review* and *The Financial Times.* You may also obtain data from the Department of Commerce's Bureau of Economic Analysis monthly reports as well as reports from the Departments of Commerce, Labor, Energy and Treasury. State and local governmental agencies provide regional economic data. In Great Britain, the BBC's *Money Programme* presents a weekly review of national and international economic trends and events. Lloyds Bank produces regular economic reports on specific nations.

4. Environmental Literature—Recommended periodicals are *Ecodecision* (Royal Society of Canada, 276 Rue Saint-Jacque, Oest, Bureau 924, Montreal H24IN3 Canada, and *Environment* (Heldres Publications, 4000 Albermarle St. NW, Washington, D.C. 20016). Several organizations publish future-oriented reports on the environment—Global Tomorrow Coalition (1325 G St., NW, Suite 915, Washington, DC 20005-3140), Worldwatch Institute, 1776 Massachusetts Ave., NW, Washington, DC 20036) and Island Press (1718 Connecticut Ave. NW, Washington, DC 20009). The Audubon Society and Sierra Club also publish periodic reports in this area. In Europe, UK's Friends of the Earth publishes periodic reports, and the German Development Agency publishes a journal (in English), *Development and Cooperation.*

5. Political Literature—*New Republic, The National Review, The National Journal, In These Times, Mother Jones, Federal Register, Congressional Quarterly, Weekly Report, Digest of Public General Bills,* and, in Great Britain, *New Statesman* and *Harsard.* Other sources include public opinion leaders, social critics, futures-oriented research establishments (e.g., the Hudson Institute, the Institute for the Future), public policy research centers (e.g., Brookings Institution, the American Enterprise Institute), governmental documents (e.g., public hearings, congressional hearings), proposed bills to the legislature, statements or opinions by social critics, experts, activists. Finally, consult *State Legislatures* (National Conference of State Legislatures, Marketing Department, 1560 Broadway Suite 700, Denver

CO 80202) for a periodic summary of pertinent legislation being considered in state legislatures throughout the country.

With respect to systematically scanning the industry environment, key sources include *The Chronicle of Higher Education, Education Week, Higher Education Daily, The Times Educational Supplement* and *The Times Higher.* A number of newsletters serving this area are readily available as well: *Higher Education and National Affairs* (American Council on Education, Publications Division, One DuPont Circle, Washington, D.C. 20036), the SHEEO/*NCES Communications Network News* (Suite 32700, 707 17th St., Denver, Colorado, 80202-3427), and the American Association of State Colleges and Universities' *Memo to the President* (One DuPont Circle, Washington, D.C. 20036). In Great Britain, use *Srhe News* and *NATFHE Journal.*

Information resources for scanning the task environment include local, state, and regional newspapers, local and state government reports as well as experts in demography, sociology, and political science departments in local colleges and universities.

Perhaps one of the most useful information resources consists of your own network of friends and colleagues within the institution and in the profession. Frequently you can phone a colleague at another institution and get information quickly. Or you can post your question in the Association for Institutional Research's or the Society for College and University Planning's electronic newsletter. [To receive AIR's electronic newsletter, contact Larry Nelson by e-mail (NELSON_L@PLU.BITNET); for SCUP, contact Joanne Cate by e-mail (BUDLAO@UCCVMA.BITNET) or call 510 987-0963.]

Using electronic data bases

There are a number of electronic data bases that contain up-to-date descriptions of articles (by title and, many times, by abstract) that are available on a subscription basis. ABI Inform, ERIC, and PAIS are a few such data bases. Two data base services, Dialogue and BRS, contain hundreds more data bases specializing in all areas. Undoubtedly, your library already subscribes to these data bases and data base services. These resources are most amenable to monitoring (i.e., to retrieving information about critical trends and potential events that you and the planning team have identified earlier).

In addition, you can use electronic bibliographic data bases to file and store information. Such programs facilitate review, referral and updating. Moreover, through using an electronic filing

system, it is easier to develop consortium relationships with similar institutions or with institutions in the same geographic area. There are a number of electronic bibliographic data base software programs available commercially. *Pro-Cite*, a software program developed by Personal Bibliographic Software, has standard workforms for each data entry into variable-length fields and records; authority lists to standardize names, bibliographic titles, or key words; and a search capability using Boolean logic for quick retrieval. One reason for using this program is that it is available in both Macintosh and PC/MS DOS formats, thereby allowing data exchange via modem, over a network, or through a mainframe. In addition, Personal Bibliographic Software has developed two complementary programs, *Pro-Search* and *Bibliolinks,* thereby allowing retrieval of information from a major data base like Dialogue, which can be downloaded to disk and transferred into an appropriate *Pro-Cite* workform (journal, book, newspaper article, etc.). It is also possible to use a standard data-base program. For example, the scanning program at the University of Minnesota uses dBase II.

Assigning information resources to scanners

Assigning scanners specific materials for regular review and analysis provides a measure of confidence that most "blips" on the radar screen will be spotted. First, ascertain what materials, conferences, and so forth, are regularly reviewed by the scanners. This list should be compared to the list of important information resources identified above. Certainly you will want to assign scanners material they already regularly review. It is likely that there will be material that is not regularly read; in such cases, ask for volunteers to read those resources. You will need to spot check how well the information resources are being reviewed. If you have an abundance of scanners, build in redundancy by having two or more scanners review the same information resource.

Conducting a scanning committee meeting

A scanning committee meeting should be held every two to three months to handle the articles/abstracts that would probably come in during that period. Several approaches could be used to prepare for a scanning committee meeting. For example, in one approach, the chair segregates abstracts according to subject area (i.e., all those concerning office automation go into one pile, employee compensation go into another, and those difficult to assign, into a miscellaneous pile). Each member of the committee is assigned a particular packet of abstracts to review in detail. All members read the entire selection of abstracts received, but are requested to come to the meeting with a list of only new trends and potential issues derived from those ab-

stracts in their packet. They are expected to examine how these new trends and issues relate to or conflict with other trend areas identified previously.

An alternative approach is for each member to review all scanning abstracts and come to the meeting prepared to sort them into three categories: "winners," "losers," and "middle-of-the-roaders." Irrespective of the approach used, the meeting itself may last from two to four hours, including a round robin, with each person reporting his/her subject area, and a free-for-all discussion. The end result should be a list and brief description of 15 or so trends, possible events, and emerging issues that appear important to consider in the annual planning exercise.

Developing a scanning/monitoring taxonomy

The trends and events identified in the initial planning activity and in the workshop for volunteer scanners may be used to develop the beginnings of a scanning taxonomy, so that every possible item resulting from scanning has a logical place to be classified. A taxonomy has two objectives: (a) to provide a comprehensive set of categories within which related materials can be filed, and (b) to provide a numbering method for every piece of information collected, as well as for the specific trends and events identified (or created) within these categories. The sectors discussed earlier make up an elementary taxonomy—social, technological, economic, environmental and political. This taxonomy can be and usually is subdivided (e.g., education, values, demographics from the social sector). With the use of electronic bibliographic database programs, it may be easier to develop the taxonomy "as you go" using key words as your categories and filing hard copy as indicated by category. Indeed, you will want to tailor your taxonomy to your institution. Be aware that developing, storing and maintaining an environmental scanning database requires a good deal of time and effort. I suggest that you enlist the aid of a reference librarian to assist you in this task.

Publishing a scanning newsletter

A scanning newsletter can serve to bring important new trends and events to the attention of all members of the organization and, at the same time, provide recognition for the efforts of scanners. Certainly the trends and events identified between planning sessions in scanning committee meetings should be included in the newsletter. This newsletter could be a "stand alone" or could be included as an insert in one of the regularly-published organizational newsletters. You may want to consider a logo, present the newsletter on distinctive paper, and have special boxes labeled, "Wild Speculations" or "Left Field," or "Wild Cards." The important point is to avoid anointing speculations, but to recognize that the purpose of the newsletter is to

print items that have implications for the organization. Solicit comments and contributions from all who read the newsletter. They are good sources of insight. Make the format easy to read in form and content. A number of institutions regularly publish such newsletters.

Methodological issues in scanning

Any scanning program must deal with a number of methodological issues. As Marien (1991) notes, scanning is an imperfect activity because of the choices we must make *vis-à-vis* "what we will and will not look at in our effort to understand the world." (p. 84) These choices are as follows: Will we observe the external environment directly or will we rely on others? Do we scan only recent material, or do we include "backscanning"? Do we include video and other non-print sources? Do we include electronic as well as non-electronic sources? Do we include non-English materials? Do we include science fiction? Do we include books? How do we determine credible sources? Do we ensure that all world views are represented? Do we confine scanning to trends? Or do we include events (what may happen) and policies (what ought to be done, which may also be what may happen). Marien argues that by ignoring the wild and not-so-wild cards that can be only loosely anticipated, "scanners are ignoring a major category of driving forces. And by ignoring preferable futures, scanners consciously or unconsciously take a passive and conservative stance that maintains the status quo by accepting the quiet tyranny of the 'most likely' future or 'base line' scenario" (p. 87). The scanning process should be structured to avoid the possibility of your institution being "blindsided" by a change in the macroenvironment that could have been seen coming.

Conclusion

Building a strategic trend intelligence system is a systematic, intensive, and relatively inexpensive way to focus quickly on strategic areas for which more detailed planning and analysis would be beneficial. Through participating in the scanning and evaluation process, senior leaders develop a shared understanding of high priority issues and a view of the dynamics of the changing environment of the organization. Participating in the process facilitates team building, focuses attention of decision makers upon the longer-term future, and assures that the intelligence developed from the process has authority from top management and, therefore, that it will inform the environmental vulnerability audit process.

References

Aguilar, F. (1967). *Scanning the business environment.* New York: Macmillan.

Brown, A., & Weiner, E. (1985). *Supermanaging: How to harness change for personal and organizational success.* New York: Mentor.

Brown, L. R., Slavin, C., & Postel, S. (1991). *Saving the planet: How to shape an environmentally susainable global economy* . New York: W. W. Norten and Co .

Callan, P. M. (Ed.), (1986). *Scanning for strategic leadership.* New Directions in Institutional Research No. 52. San Francisco: Jossey-Bass.

Cantonsville (Maryland) Community College. (1989). *External scan and forecast, 1989.*

Cope, R. (1981). Environmental assessments for strategic planning. N. L. Poulton (Ed), *Evaluation of management and planning systems.* New directions for institutional research No. 31 (pp. 5-15). San Francisco: Jossey-Bass.

Corson, W. (Ed.), (1990). *Global ecology handbook.* Boston: Beacon Press.

Fahey, L., King, W. R., & Narayanan, V. K. (1981). Environmental scanning and forecasting in strategic planning: The state of the art. *Long Range Planning, 14*(2), 32-39.

Fahey, L., & Narayanan, V. K. (1986). *Macroenvironmental analysis for strategic management.* New York: West Publishing Company.

Fridel, J. (1989, September). *2020 perfect vision for the next century: An environmental scan.* Bettendorf, IA: Eastern Iowa Community College District.

Friedel, J. N., Coker, D. R., & Blong, J. T. (1991, May). A survey of environmental scanning in U.S. technical and community colleges. Paper presented at the meeting of the Association for Institutional Research, San Francisco, CA.

Jonson, R. W. (1986). The environmental context of higher education. In P. M. Callan (Ed.), *Environmental scanning for strategic leadership*, New directions for institutional research No. 52 (pp. 5-20). San Fransisco: Jossey-Bass.

Keller, G. (1983). *Academic strategy: The management revolution in American higher education.* Baltimore: Johns Hopkins.

Marien, M. (in press). The good books imperatives: Keeping up in futures studies. In J. F. Coates & J. Jarratt (Eds.), *The Annals of the American Academy of Political and Social Science.* Neubury Park, CA: Sage.

Marien, M. (1991, September). Scanning: An imperfect activity in an era of fragmentation and uncertainty. *Futures Research Quarterly, 7* (3), 82-90.

Mecca, T. V., & Morrison, J. L. (1988). Pathways to the Future: Linking environmental scanning to strategic management. *Community College Review, 15*(4), 35-44.

Meixell, J. M. (1990, July). Environmental scanning activities at public resarch and doctorate-granting universities. Paper presented at the annual meeting of the Society for College and University Planning, Atlanta, GA.

Morrison, J. L. (1985). Establishing an environmental scanning process. In R. Davis (Ed.), *Leadership and institutional renewal,* New directions for higher education: No 49. San Francisco: Jossey-Bass.

Morrison, J. L. (1987). Establishing an environmental scanning system to augment college and university planning. *Planning in Higher Education, 15*, 7-22.

Morrison, J. L. (1988, July). *Developing a comprehensive environmental scanning system: A case study.* Paper presented at the annual meeting of the Society for College and University Planning, Toronto, Ontario

Morrison, J. L. (1992). Environmenal scanning. In Meredith A. Whiteley, John D. Porter, and Robert H. Fenske (Eds.), *A primer for new institutional researchers.* Tallahassee, Florida: The Association for Institutional Research, pp. 86-99.

Morrison, J. L., & Cope Robert G. (1985, December). Using futures research techniques in strategic planning: A simulation. *Planning for Higher Education, 13*(2), 5-9.

Morrison, J. L., & Held, W. G. (1989, Spring/Summer). Developing environmental scanning/forecasting systems to augment community college planning.*Journal of the Virginia Community College Association*, (4), 12-20.

Morrison, J. L., & Mecca, T. V. (1989). Managing uncertainty. In J. C. Smart (Ed.), *Handbook of theory and research in higher education* Vol. 5, (pp. 351-382). New York: Agathon Press.

Morrison, J. L., Renfro, W. L., & Boucher, W. I. (1984). *Futures research and the strategic planning process: Implications for higher education.* ASHE-ERIC Higher Education Research Report No. 9. . Washington, D.C.: Association for the Study of Higher Education.

Neufeld, W. P. (1985, September). Environmental scanning: Its use inforecasting emerging trends and issues in organizations. *Futures Research Quarterly, 1*(3), 39-52.

Osborn, F. (1989, May). *Environmental scan: A strategic planning document.* Rochester, NY: Monroe Community College.

Pritchett, M. S. (1990, May). *Environmental scanning in support of planning and decision making: Cast studies at selected institutions of higher education.* Paper presented at the annual meeting of the Association for Institutional Research, Louisville, KY.

Renfro, W. L., & Morrison, J. L. (1983). The scanning process: Getting started. In J. L. Morrison, W. L. Renfro, & W. I. Boucher (Eds.), *Applying methods and techniques of futures research.* New Directions for Institutional Research No. 39, (pp. 5-20). San Francisco: Jossey-Bass.

Simpson, E., McGinty, D., & Morrison, J. L. (1990). Environmental scanning at the Georgia Center for continuing education: A progress report. In D. M. Johnson (Ed.), *A handbook for professional development in continuing higher education.* Washington, D.C.: National University Continuing Education Association.